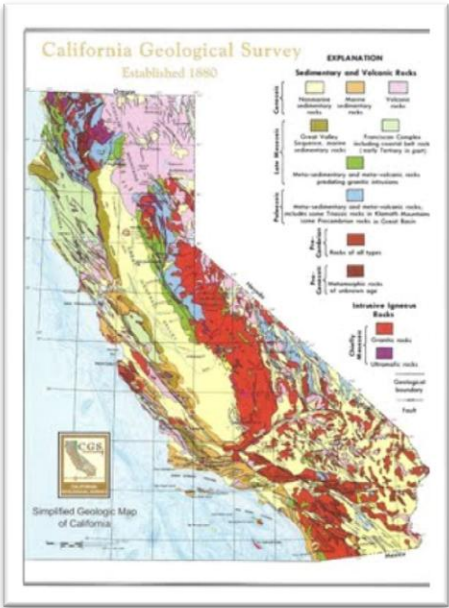
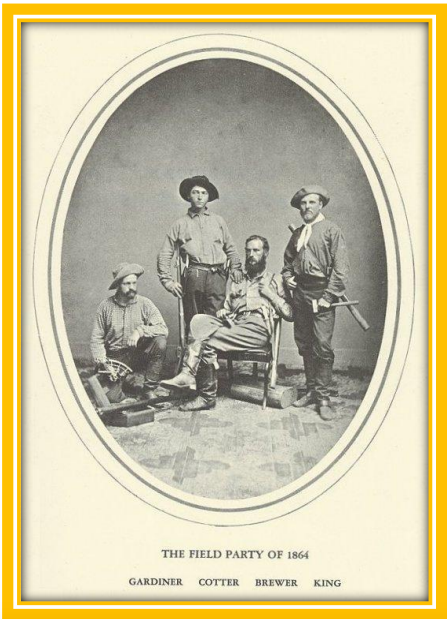


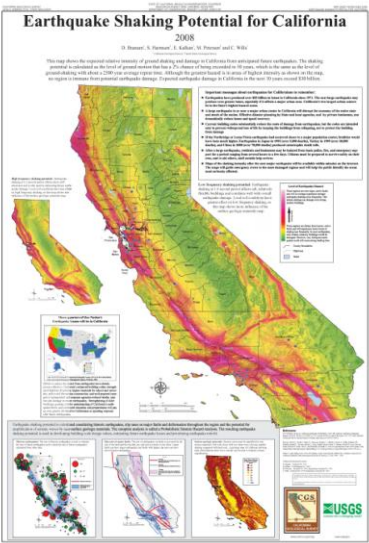
CALIFORNIA GEOLOGICAL SURVEY

1860-2010

CELEBRATING 150 YEARS



California Geological Survey, 1863
Standing: William M. Gabb, Josiah D. Whitney, State Geologist, Clarence King
Seated: Chester Averill, William Ashburner, Charles F. Hoffmann, William H. Brewer



2010

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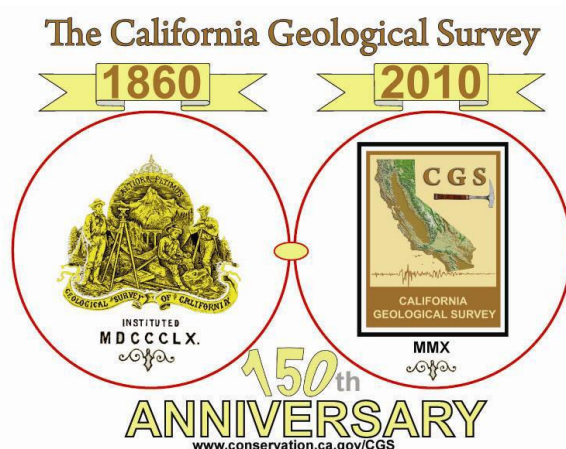
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<http://www.conservation.cgs>

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California’s geology is varied and complex. The high mountains and broad valleys we see today were created over long periods of time by geologic processes such as fault movement, volcanism, sea level change, erosion and sedimentation. Below are 15 facts about California’s geology and the California Geological Survey (CGS):

- 1 California has more than 800 different geologic units that provide a variety of rock types, mineral resources, geologic structures, and spectacular scenery. The geology and landforms of California were largely created by three episodes of subduction of the oceanic plate under the continental plate from the west, the initiation and growth of the San Andreas fault system, and the extension of the Earth’s crust in the Basin and Range area of southern California.
- 2 Both the highest and lowest elevations in the 48 contiguous states are in California, only 80 miles apart. The tallest mountain peak is Mt. Whitney at 14,496 feet; the lowest elevation in California and North America is in Death Valley at 282 feet below sea level.
- 3 Salts are found throughout California's desert areas in basins that have periodically filled with water that subsequently dried up or evaporated. Evaporation of freshwater in Mono Lake, thought to be the oldest lake on the North American Continent, has left behind salts and minerals making the water three times saltier than sea water.
- 4 Fossils of mammoths, dogs, bears, cats, horses, camels, antelope, bison, sheep, turtles, shellfish, flamingos and palm trees have been found in sedimentary rocks in southern California near Barstow. A variety of other fossils such as oysters, snails, clams and vertebrates have also been found in northern California.
- 5 California’s state mineral is gold. The first known discovery of gold was in 1770 at the Potholes in Imperial County. The discovery of gold in 1848 at Coloma led to the Gold Rush of 1849, which caused an influx of settlers and led to California becoming the 31st state in 1850. The largest placer gold “nugget” found in California in 1854 weighed 54 pounds troy (648 ounces).
- 6 Although there are very few active gold mines today, California ranks 5th among the states in non-fuel mineral production, accounting for 5.6% of the United States total. In 2008, there were 720 active mine sites in California, with a market value of \$4.0 billion. Construction aggregate (sand and gravel and crushed stone), used in buildings, roads, and other structures, is California’s leading industrial mineral with a total value of \$1.1 billion produced in 2008.
- 7 Geologic hazards in California consist of earthquake shaking and fault movement, tsunamis, landslides, volcanic eruptions, floods, and exposure to hazardous minerals.
- 8 There are more than 700 named faults in California that are recently active. The longest recently active fault in California is the San Andreas Fault system. It has a total known length of 1,600 kilometers (1,000 miles) and incorporates many parallel fault fractures and segments.
- 9 Approximately 100 earthquakes occur in California daily, though most of them are too small in magnitude to feel. The largest earthquake recorded in California was the M7.8 northern California earthquake of 1906. However, the southern California earthquake of 1857 was probably M7.9 and the offshore northern California Cascadia Subduction Zone earthquake of 1700 was probably M9.0.
- 10 Landslides occur on steep slopes and on slopes underlain by weak rock materials throughout California. They are triggered by earthquakes, storms, fire damage, wave action, natural erosion, and human activities. The Coast Ranges of northern California and the Transverse Ranges of southern California are especially prone to devastating landslides and flooding, particularly when earthquakes or seasonal wildfires are followed by heavy rainfall.
- 11 California's most recent volcanic eruptions occurred at Lassen Peak between 1914 and 1921. Evidence of recent volcanic activity is also present at Lassen Volcanic National Park; the Long Valley Caldera, Mono Craters, and the Coso Volcanic Field; Mt. Shasta and the Modoc Plateau; The Geysers and geothermal hot springs area near Clear Lake; and the Salton Sea.
- 12 In 1860, the State Legislature established the first official State Geologist and Geological Survey of California under Josiah Whitney. With a staff of six, Whitney began work on the geology, geography and natural history of the state. In 1880, a State Mining Bureau was established to report on the occurrence, mining and processing of gold. The Bureau published the first geologic map of the state in 1891, showing eight geologic units. Four revisions of the State Geologic Map were made in 1916, 1938, 1977 and 2010.
- 13 The name of the Bureau was changed in 1927 to the Division of Mines within the Department of Natural Resources, and the first staff geologist was hired in 1928. In the following years, two well-defined mining engineering and geology branches were established and the Division began publishing numerous geologic quadrangle maps and reports. In 1962, the name was changed to the Division of Mines and Geology (DMG).
- 14 The official name of the division was changed again in 2006 to the California Geological Survey (CGS) to reflect the development of new programs and the shift in organization from primarily mining-oriented to one responsible for a wider range of practical applications in geology and geologic hazards. CGS currently operates six programs: Earthquake Engineering; Mineral Resources and Mineral Hazards Mapping; Geologic and Hazards Mapping; Seismic Hazard Assessment; Seismic Hazards Zonation; and Forest and Watershed Geology.
- 15 The California Geological Survey Library has also been in existence since 1880 and has developed into an extensive collection of over 100,000 scientific and technical books and reports, including CGS publications, various map collections, photographs, U.S. Geological Survey publications and periodicals related to various geological topics.